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THERE IS A VERY IMPORTANT REASON WHY I LIKE TO BE INTRODUCED AS A THIRD PROGRAMMER ON THE FIRST COMPUTER, IT'S BECAUSE IT GIVES ME AN OPPORTUNITY TO REMIND YOU THAT THE FIRST LARGE-SCALE DIGITAL COMPUTER IN THE UNITED STATES WAS A NAVY COMPUTER, OPERATED BY A NAVY CREW DURING WORLD WAR II.

AND LATELY I'VE BEEN FINDING I HAVE TO REMIND PEOPLE OF THAT BECAUSE IT'S BEEN A TENDENCY ON THE PART OF A CERTAIN JUNIOR SERVICE TO TRY AND CLAIM CREDIT FOR THOSE EARLY COMPUTERS. AND OF COURSE THEY DIDN'T EXIST YET. SO JUST REMEMBER IT WAS A NAVY COMPUTER.

AND OF COURSE I HAVE A REASON FOR WEARING A CAP. IT'S A VERY IMPORTANT REASON. THE REASON I WEAR IT, OF COURSE, IS THAT THIS IS MY IDENTIFIER.

I HOPE THAT EVERYBODY IS AWARE OF THE FACT THAT EVERY RECORD YOU PUT IN A COMPUTER MUST HAVE AN IDENTIFIER. THAT'S SO YOU KNOW WHERE TO PUT IT AND TO FIND IT AGAIN. THERE'S A CATCH ON THOSE IDENTIFIERS THOUGH. THEY HAVE TO BE UNDERSTOOD BY THE PERSON WHO PUTS IT ON THE RECORD AND ALSO BY THE PERSON WHO LATER LOOKS AT THE RECORD.

AND THAT'S WHERE I'M HAVING PROBLEMS WITH MY IDENTIFIER.

BECAUSE I GO WANDERING AROUND AIRPORTS, PEOPLE COME UP TO ME AND SAY, "WHEN IS THE NEXT PLANE LEAVING FOR HOUSTON?"

I GOT TOTALLY DEMOTED ONE NIGHT IN SAN FRANCISCO. I GOT OFF AN ELEVATOR AND THERE WAS A COUPLE IN THE ELEVATOR WITH ME. AND AS I GOT OFF, I HEARD THE WOMAN SAY TO HER HUSBAND, "WHAT WAS THAT?" AND HE SAID, "THAT WAS A SECURITY GUARD."

THE FINAL ONE, THOUGH, WAS WHEN I WENT UP TO SPEAK AT THE UNIVERSITY OF GUELPH, UP IN CANADA, AND HAD TO GO THROUGH TORONTO AIRPORT. SO I GAVE MY PASSPORT TO THE IMMIGRATION OFFICER AND HE LOOKED AT IT AND AT ME AND SAID, "WHAT ARE YOU? I SAID, "UNITED STATES NAVY." HE TOOK A SECOND, REAL-HARD LOOK AT ME AND THEN HE SAID, "YOU MUST BE THE OLDEST ONE THEY'VE GOT." I DIDN'T REALLY THINK THAT WAS A POLITE WAY TO WELCOME VISITORS TO CANADA, BUT I COULDN'T THINK OF A GOOD PUT-ME-DOWN.

SO THOSE ARE THE VARIOUS REASONS FOR WEARING INSIGNIA AND PARTICULARLY FOR ME TO WEAR MY CAP.

I'VE LONG WATCHED THE COMPUTER WORLD, I THINK WE'VE FORGOTTEN SOMETHING, THOUGH, THAT IS QUITE IMPORTANT.

WHEN WE USE A COMPUTER, WE TAKE SOME INCOMING DATA AND REPROCESS IT. IT'S JUST LIKE ANY MANUFACTURING OPERATION. YOU HAVE A RAW MATERIAL CALLED DATA. YOU PROCESS IT USING HARDWARE, SOFTWARE, COMMUNICATIONS AND PEOPLE. THE OUTPUT PRODUCT HOPEFULLY IS INFORMATION.

WE EQUALLY HOPE THAT THAT PROCESS IS UNDER SOME FORM OF CONTROL. AND THAT THERE'S A FEEDBACK LOOP TO IMPROVE THE QUALITY OF THE INFORMATION. WE'VE LOOKED AT THAT SYSTEM.

OF COURSE I DIDN'T KNOW ANYTHING ABOUT SYSTEMS BEFORE WORLD WAR II. THE SYSTEMS ALL HAPPENED DURING WORLD WAR II.

IN FACT, BEFORE WORLD WAR II, I MIGHT HAVE A SICK STOMACH BUT AFTER WORLD WAR II, I HAD A GASTROINTESTINAL SYSTEM.

EVERYTHING'S A SYSTEM NOW DAYS.

IN THIS SYSTEM, WE'VE LOOKED AT THE PROCESS, WE'VE HAD SEMINAR AFTER SEMINAR ABOUT HARDWARE AND SOFTWARE AND TRAINING PEOPLE IN COMMUNICATIONS. WE'VE NEVER LOOKED REALLY HARD AT THE DATA OR AT THE INFORMATION BEING PRODUCED AND THIS IS A GREAT MISTAKE.

BECAUSE WHAT IS THE USE IN PROCESSING DATA INTO INFORMATION UNLESS YOU KNOW SOMETHING ABOUT THE DATA YOU'RE PUTTING IN AND EVEN MORE ABOUT THE INFORMATION YOU'RE PUTTING OUT.

AND I WOULD REMIND YOU THAT INFORMATION ITSELF IS TOTALLY INERT. IT'S SOMETHING YOU READ ON A PAGE. YOU MAY SEE IT ON A COMPUTER SCREEN. YOU HEAR IT OVER A TELEPHONE. BUT INFORMATION BY ITSELF NEVER DOES ANYTHING. IT STILL MUST GO TO A HUMAN BRAIN, WHO MUST SORT IT OUT, COMPARE IT, COLLATE IT, PROJECT IT INTO THE FUTURE, AND TURN IT INTO SOMETHING THAT WE MIGHT CALL INTELLIGENCE UPON WHICH WE MAKE DECISIONS.

WE SPEND A LOT OF TIME TRAINING PEOPLE FOR HARDWARE AND SOFTWARE. WE HAVE YET TO BEGIN TO TRAIN THE PEOPLE WHO WILL HANDLE THE INFORMATION. AND THEY NEED MORE THAN TECHNICAL TRAINING. THEY'RE GOING TO NEED A GOOD BACKGROUND.

THEY NEED SOME KNOWLEDGE OF HISTORY, OF ECONOMICS, OF PHILOSOPHY. THEY NEED A REAL BACKGROUND BEFORE THEY CAN TAKE THAT INFORMATION AND CHANGE IT INTO DECISION MAKING.

AND THIS IS SOMETHING WE HAVE BEEN NEGLECTING, IS TO RECOGNIZE THAT PEOPLE NEED FAR MORE THAN JUST A TECHNICAL BACKGROUND. THEY NEED A BROAD BACKGROUND TO MAKE PROPER USE OF THAT INFORMATION.

OF COURSE I KNOW THAT YOU'RE LIVING IN A WORLD OF CHANGE. EVERYBODY KEEPS TRYING TO TELL ME THAT IT'S RAPID CHANGE, BUT



IT'S BEEN RAPID CHANGE EVER SINCE I WAS BORN. IT'S NOTHING NEW THAT CHANGE IS RAPID. NOTHING NEW THAT CHANGE IS HAPPENING.

I CAN REMEMBER WHEN PEOPLE WOULDN'T BUY A REFRIGERATOR BECAUSE THE ONLY WAY TO KEEP LETTUCE COLD WAS ON ICE.

I CAN REMEMBER WHEN PEOPLE WERE AFRAID TO USE THE TELEPHONE BECAUSE THEY WERE GOING TO GET AN ELECTRIC SHOCK.

CHANGE IS NOTHING NEW. CHANGE IS SOMETHING WE LIVE WITH. AND YET WE SOMETIMES MAKE MAJOR MISTAKES.

I THINK WE'VE FORGOTTEN ABOUT UNDERLYING THINGS AGAIN. BACK WHEN I GREW UP, I USED TO GO OUT AND SIT ON RIVERSIDE DRIVE ON A SUNDAY AFTERNOON AND WATCH ALL THE BEAUTIFUL HORSES AND CARRIAGES GO BY.

THERE MIGHT BE ONE CAR. THEY WERE ENORMOUSLY EXPENSIVE, INDIVIDUALLY BUILT. AND ALONG CAME HENRY FORD AND HE STARTED TO BUILD MODEL T'S. YOU COULD HAVE ANY COLOR YOU WANTED AS LONG AS IT WAS BLACK. THEY COST BETWEEN THREE HUNDRED AND SIX HUNDRED DOLLARS AND PEOPLE STARTED TO OWN CARS.

THAT WAS WHEN THE REAL AUTOMOTIVE REVOLUTION STARTED, WHEN PEOPLE COULD OWN THE CARS.

AND YET, WE NEGLECTED SOMETHING AT THAT TIME. WE BUILT HIGHWAYS, WE BLACKTOPPED THE DIRT ROADS. WE BUILT SHOPPING CENTERS SO PEOPLE WOULD SHOP NEAR HOME. AND YET WE NEGLECTED SOMETHING. WE DID NOT LOOK AT THE UNDERLYING THING, TRANSPORTATION AS A WHOLE.

THE NET RESULT IS -- TODAY OUR ROAD BEDS ARE FALLING APART WITH THE RAILROADS. THE ARMY TANK TRANSPORTATION PEOPLE TELL ME THAT THEY'RE GOING TO HAVE TO BUILD SOME SPECIAL CARRIERS TO MOVE THE TANKS FROM THE CENTER OF THE COUNTRY TO THE PORTS TO SHIP THEM OVERSEAS BECAUSE ALL THE FLAT CARS ARE GONE.

IF WE WANTED TO MOVE COAL TO REPLACE OIL, WE COULDN'T DO IT. THERE'S NOT ENOUGH HOPPER CARS TO MOVE BOTH THE GRAIN CROP AND THE COAL. WE'VE DONE A VERY POOR JOB OF LOOKING AT THE UNDERLYING THING, TRANSPORTATION AS A WHOLE.

NOW, WHETHER YOU RECOGNIZED IT OR NOT, THE MODEL T'S OF THE COMPUTER INDUSTRY ARE HERE. WE'VE BEEN THROUGH THE PRELIMINARIES OF THE INDUSTRY. WE'RE NOW AT THE STAGE WHERE PEOPLE CAN OWN THEM. IT'S EVEN WHERE COMPANIES SAY, "YOU CAN HAVE ANY COLOR YOU WANT, AS LONG AS IT'S BLUE."

PEOPLE ARE BEGINNING TO OWN COMPUTERS. WE'RE NOW AT THE VERY BEGINNING OF WHAT WILL BE THE LARGEST COMPANY IN MANUFACTURING THE LARGEST PRODUCT IN THE ENTIRE UNITED STATES.

NOW I'M AFRAID WE'RE MAKING THE SAME MISTAKE OVER AGAIN. I'M AFRAID WE'LL GO OUT AND BUY BEAUTIFUL PIECES OF HARDWARE WITH



BLINKING LIGHTS AND CONVOLUTED SOFTWARE, AND TOTALLY NEGLECT THE UNDERLYING THING, WHICH IS THE TOTAL FLOW OF INFORMATION THROUGH ANY ORGANIZATION, ACTIVITY, COMPANY OR WHAT HAVE YOU.

ONE OF THE FIRST THINGS WE NEED TO DO WHEN WE BUILD THE SYSTEMS OF THE FUTURE IS IDENTIFY WHICH IS THE MOST VALUABLE INFORMATION IN THAT FLOW AND WE'LL PUT THE BEST EQUIPMENT ON IT. YET, FOR SEVENTEEN YEARS NOW, I'VE BEEN ASKING PEOPLE HOW THEY VALUED THEIR INFORMATION? AND I GET COMPLETELY BLANK STARES.

NOW, I KNOW A CHEMICAL PLANT THAT'S TOTALLY OPERATED BY COMPUTER. INFORMATION COMES IN FROM MARKETING, GOES TO THE COMPUTER. IT OPENS VALVES, SHOVS STUFF THROUGH PIPES, TELLS INVENTORY WHAT IT'S MADE. LET'S SUPPOSE THAT TWO THINGS ENTER THAT FLOW OF INFORMATION SIMULTANEOUSLY. ONE COMES FROM A VALVE OUT IN THE PLANT THAT SAYS, "IF YOU DON'T OPEN ME, THE PLANT'S GOING TO BLOW UP." YOU HAVE LESS THAN A MINUTE IN WHICH TO ACT. HUNDREDS OF LIVES AT STAKE. A HUNDRED MILLION DOLLAR CHEMICAL PLANT.

AT THE VERY SAME INSTANT, IN ANOTHER PART OF THE SYSTEM COMES THE FACT THAT JOE DID TWO HOURS OF OVERTIME.

WHICH IS THE MORE VALUABLE PIECE OF INFORMATION? WHAT ARE OUR CRITERION? I SUGGEST THREE. THE TIME IN WHICH WE HAVE TO ACT. THE NUMBER OF LIVES AFFECTED. THE NUMBER OF DOLLARS AFFECTED. I THINK THERE'S A FOURTH -- THE IMPORTANCE OF THAT INFORMATION IN MAKING DECISIONS.

WE HAVE TOTALLY FAILED TO LOOK AT THE VALUE OF THE DATA WE ARE PROCESSING AND THIS IS SOMETHING WHICH IS BECOMING INCREASINGLY IMPORTANT IN THE FUTURE. AS A MATTER OF FACT, YOU WILL SEE AN ENTRY ON A COMPANY BALANCE SHEET UNDER OTHER ASSETS WILL BE LISTED "INFORMATION."

THEY'RE ALREADY BEGINNING TO INSURE THEIR INFORMATION. I DON'T BELIEVE THE I.R.S. IS GOING TO MISS AN OPPORTUNITY LIKE THIS TO TAX SOMETHING. IN FACT, I HAD A DELIGHTFUL TIME. I WENT OVER TO SPEAK FOR THEM AND I ASKED THEM AT WHAT RATE WERE THEY GOING TO DEPRECIATE THE VALUE OF INFORMATION. I HOPE THAT THEY'RE STILL WORRYING ABOUT THAT.

WHEN I STARTED IN THE BEGINNING, TIME WENT ON AND IT FINALLY GOT TO BE 1946. THE WAR WAS OVER. EACH ONE OF US HAD TO DECIDE WHAT THEY WERE GOING TO DO NEXT.

UP TO THEN, THE WAVES HAD ALL BEEN RESERVERS. IN 1946, THE NAVY OFFERED US THE OPPORTUNITY TO TRANSFER TO REGULAR NAVY. SO, NATURALLY, I APPLIED FOR REGULAR NAVY AND I WAS TURNED DOWN BECAUSE I WAS TOO OLD. THE CUT-OFF AGE WAS 38 AND I WAS 40.

THE THING I WANTED TO ADVISE YOU OF IS, "IT'S JUST AS WELL TO BE TOLD YOU'RE TOO OLD WHEN YOU'RE 40 BECAUSE YOU GO THROUGH THE TRAUMATIC EXPERIENCE AND IT WILL NEVER BOTHER YOU AGAIN AFTER



THAT." SO I REALLY RECOMMEND IT HIGHLY.

HOWEVER, CONTINUING IN THE RESERVES, I STILL HAD TO TAKE TRAINING COURSES, CORRESPONDENCE COURSES, AND ONE OF THE VERY FIRST PROBLEMS, WELL, I RAN THROUGH ALL OF THE ORDNANCE COURSES FIRST. I LEARNED ALL ABOUT BIG GUNS AND GUN TURRETS. THEN I HAD TO TAKE THE FIRST WAR COLLEGE COURSE. I LEARNED HOW TO FUEL A TASK FORCE OF SHIPS AT SEA, HOW TO ARRANGE SOME SUBMARINES IN THE CARIBBEAN AND THEN ALONG CAME A QUESTION.

I WAS TO MAKE A PLAN TO TAKE AN ISLAND. AFTER I COMPLETED MY PLAN, I WAS TO MAKE TWO REVIEWS OF IT. I WAS TO REVIEW MY PLAN IN THE LIGHT OF ALL POSSIBLE ENEMY ACTIONS, ALL POSSIBLE FUTURE EVENTS. AND THEN I WAS TO LOOK AT THE COST OF NOT CARRYING OUT THE PLAN -- TWO PARAGRAPHS THAT YOU MUST PUT ON THE END OF EVERY SINGLE PLAN YOU EVER MAKE.

AGAIN AND AGAIN, I KEEP FINDING PEOPLE LEAVING OFF THAT COST OF NOT DOING SOMETHING. YET OFTEN IT'S THE MOST POWERFUL INFLUENCE YOU CAN GET. IF THE COST OF NOT DOING SOMETHING IS ENOUGH GREATER THAN THE COST OF DOING IT, THAT'S WHAT GETS YOUR BUDGET. WE DID THAT FOR EVERY ISLAND. WE LOOKED AT THE COST IN MEN AND MATERIAL OF TAKING THE ISLAND. THEN WE LOOKED AT THE CONSEQUENCES OF BYPASSING THE ISLAND -- NOT TAKING IT. SOME ISLANDS WE TOOK. TINIAN. SAIPAN. OTHERS WE BYPASSED LIKE TRUK.

BUT A STUDY WAS ALWAYS MADE, "WHAT IS THE COST OF NOT DOING IT?" SO, PLEASE BE SURE THAT'S ON THE END OF EVERY PLAN. ALL POSSIBLE ENEMY ACTIONS, ALL POSSIBLE FUTURE EVENTS.

AGAIN AND AGAIN, I FIND PEOPLE BASING THEIR PLANS ON THE EQUIPMENT THEY HAVE IN HOUSE AND THE THINGS THEY'RE DOING NOW; AND TOTALLY FAILING TO REVIEW THEM IN THE LIGHT OF THE FUTURE.

PROBABLY THE MOST DANGEROUS PHRASE YOU CAN EVER USE IN ANY COMPUTER ENVIRONMENT IS THAT DREADEFUL ONE, "BUT WE'VE ALWAYS DONE IT THAT WAY." THAT'S A FORBIDDEN PHRASE IN MY OFFICE.

TO COUNTERACT IT, I KEEP A CLOCK WHICH OPERATES ENTIRELY COUNTER CLOCKWISE. FIRST DAY PEOPLE MEET IT, THEY CAN'T TELL TIME. BY THE SECOND DAY THEY KNOW WHAT USED TO BE TEN OF IS NOW TEN AFTER.

NORMALLY, IT'S NOT UNTIL THE THIRD DAY THAT THEY RECOGNIZE THERE IS NEVER ANY REASON WHY CLOCKS HAVE TO RUN CLOCKWISE. THEY COULD HAVE JUST AS WELL RUN COUNTER-CLOCKWISE.

OF COURSE, I SUSPECT THEY DO BECAUSE THAT'S THE DIRECTION THE SHADOW OF SUNDOWN ON THE NORTHERN HEMISPHERE.

I ALSO THINK THE HANDS DO NOT HAVE TO GO BY THE DIGITS ON THE CLOCK. I HAVE ANOTHER CLOCK THAT HAS A POINTER AND THE DIGITS GO AROUND ON A DRUM. IT TELLS PERFECTLY GOOD TIME.

OF COURSE, BY NOW I HAVE A DIGITAL CLOCK. AND MY VERY HELPFUL



CREW GAVE ME AN HOUR GLASS. THEY SIT THERE DAY IN AND DAY OUT AND SAY, "NEVER, NEVER, NEVER IN THIS OFFICE SAY 'BUT WE'VE ALWAYS DONE IT THAT WAY.'"

SO I WOULD LIKE TO GIVE EACH ONE OF YOU A SMALL GIFT. I'LL PROMISE YOU SOMETHING. IF DURING THE NEXT YEAR ANYONE OF YOU SAYS, "BUT WE'VE ALWAYS DONE IT THAT WAY," I WILL INSTANTLY MATERIALIZE BESIDE YOU AND I WILL HAUNT YOU FOR 24 HOURS AND SEE IF I CAN GET YOU TO TAKE ANOTHER LOOK.

WE MUST MOVE TO THE FUTURE.

I HAD TO GIVE A PRESENTATION FOR THE ELECTRONIC DATA PROCESSING COMMITTEE OF THE JOINT CHIEFS OF STAFF. ALL ADMIRALS AND GENERALS.

I HAD TO REMIND THOSE GENTLEMEN THAT THEY HAD TREMENDOUSLY THICK REPORTS ON THEIR DESKS TO ABSORB. MAJOR DECISIONS THEY HAD TO MAKE.

THEY HAD NOT HAD TIME TO KEEP UP WITH THE TECHNOLOGY THAT WAS CHANGING OVERNIGHT. THEREFORE, THEY WERE GOING TO HAVE TO LISTEN TO THEIR JUNIORS, LISTEN TO ALL OF YOU.

I'VE BEEN WATCHING THE HAPPENINGS IN THE NAVY WITH THE GREATEST OF GLEE. THERE WAS A YOUNG LIEUTENANT JUNIOR GRADE. HE WAS ORDERED TO A VERY SMALL SHIP. THE NAVY THOUGHT IT WAS TOO SMALL TO HAVE A COMPUTER FOR ADMIN.

HE TOOK HIS OWN COMPUTER ABOARD. HE VERY QUICKLY GOT ALL THE FILES IN THE COMPUTERS, GETTING ALL THE REPORTS IN ON TIME. DOING A MARVELOUS JOB.

WHEN HE WAS TRANSFERRED, THE CAPTAIN HAD TO BUY HIS COMPUTER BECAUSE THE SHIP WOULDN'T RUN WITHOUT IT ANYMORE.

AND THERE WAS THE YOUNG COMMANDER OF A SQUADRON WHO WAS TOLD TO TAKE HIS SQUADRON OUT TO AN AIR CRAFT CARRIER. HE FOUND THAT HE WOULD HAVE TO LEAVE THE MAINTENANCE RECORDS OF HIS PLANES IN THE LOCAL NAVAL AIR REWORK FACILITY ASHORE.

THIS DIDN'T SUIT HIM. HE WANTED THE MAINTENANCE RECORDS OF HIS PLANES WITH HIM. SO HE WENT OUT AND BOUGHT AN APPLE AND THEN HE WENT OVER TO THE NARF (NAVAL AIR REWORK FACILITY) AND HE LIBERATED, BORROWED, STOLE, HIS MAINTENANCE RECORDS OUT OF THE NARF AND INTO HIS APPLE.

HE GOT A CASE FOR IT AND PUT IT IN A SPACE BEHIND HIS SEAT AND HE FLEW OFF TO THE CARRIER WITH ALL OF HIS MAINTENANCE RECORDS IN A COMPUTER WITH WHICH TO UPDATE THEM.

IT WAS HIGHLY SUCCESSFUL.



SO HE CAME BACK AND TOLD ABOUT IT AT THE DEPARTMENT OF DEFENSE COMPUTER INSTITUTE. AND SOMEBODY LOOKED AT HIM AND SAID, "ARE YOU SUPPOSE TO DO THAT." AND HE SAID, "I DIDN'T ASK."

THAT BRINGS ME TO THE MOST IMPORTANT PIECE OF ADVICE I CAN GIVE TO ALL OF YOU: WHEN YOU HAVE A GOOD IDEA, AND IT'S GOING TO BE A CONTRIBUTION, I WANT YOU TO GO AHEAD AND DO IT. IT IS MUCH EASIER TO APOLOGIZE THEN IT IS TO GET PERMISSION.

WE'RE GOING TO HAVE TO COUNT ON YOU TO DO THESE THINGS AND MAKE THEM WORK. AND YOU'RE GOING TO HAVE TO GO AHEAD AND DO IT.

AND THEN WHEN THEY CATCH UP WITH YOU, LATER OF COURSE, SAY, "OH, GEE, I DIDN'T KNOW I WASN'T SUPPOSE TO DO THAT! BUT AIN'T IT PRETTY? LOOK HOW IT WORKS."

AND IF YOU ARE A LITTLE BIT SCARED ABOUT TAKING ALL THOSE RISKS, I WILL EVEN LOAN YOU A MOTTO: "A SHIP IN PORT IS SAFE, BUT THAT IS NOT WHAT SHIPS ARE BUILT FOR."

I WANT EVERYONE OF YOU TO BE GOOD SHIPS AND SAIL OUT TO SEA. DO THE NEW THINGS AND MOVE US FORWARD BECAUSE YOU ARE THE FUTURE.

THERE'S ANOTHER CASE OF A YOUNG ELECTRONIC TECHNICIAN FIRST CLASS OUT IN THE PACIFIC FLEET. HE BUILT A COMPUTER ABOARD SHIP. WELL, THE P.R. MAN OF HIS SHIP THOUGHT THAT WAS OUT OF THIS WORLD, SO HE TOOK A PICTURE OF THE SAILOR AND HIS COMPUTER AND PUT IT IN THE "NAVY TIMES."

WELL, ADMIRAL PETER CULLEN SAW IT, SO HE DECIDED TO WRITE A LETTER TO THE SAILOR AND CONGRATULATE HIM. AND KNOWING HOW LONG A LETTER WOULD TAKE BY NAVY MAIL, HE PUT A STAMP IT ON AND SENT IT DIRECT BY U.S. MAIL.

SO, THE SAILOR DECIDED IF THE ADMIRAL COULD WRITE HIM DIRECT, HE COULD WRITE THE ADMIRAL DIRECT. AND HE DID. HE THANKED THE ADMIRAL FOR HIS LETTER AND HE POINTED OUT THAT HE DIDN'T KNOW ADMIRALS READ "NAVY TIMES," BUT HE WAS SURE GLAD THEY DID. HE THEN WENT ON FOR TEN SINGLE-SPACED PAGES AND TOLD THE ADMIRAL EXACTLY WHAT WAS WRONG WITH THE COMPUTERS IN THE PACIFIC FLEET.

PROBABLY THE BEST SURVEY WE'VE EVER SEEN.

SO, THE ADMIRAL REACHED OUT HIS HAND AND TRANSFERRED E.T. ONE SLATER PACIFIC FLEET TO NORFOLK. GAVE HIM SOME MORE PEOPLE AND A SMALL AMOUNT OF MONEY AND TOLD HIM TO BUILD A COMPUTER. AND THEY DID.

PRETTY SOON, THEY BECAME EXPERTS IN MICRO-COMPUTERS. THEY LIBERATED BOTH HARDWARE AND SOFTWARE. AND THEY FINALLY DECIDED THAT PART OF THEIR JOB WAS TO TELL THE REST OF THE NAVY ABOUT MICRO-COMPUTERS.



SO THEY DECIDED IT WOULD BE A FINE IDEA TO PUT ON A SEMINAR. DO YOU HAVE ANY IDEA WHAT IT TAKES TO PUT ON A SEMINAR IN THE NAVY? YOU HAVE TO GO ALL THE WAY TO THE TOP OF THE NAVY TO GET PERMISSION AND MONEY AND BACK DOWN AGAIN. THAT COULD TAKE YOU UP TO A YEAR.

THEY IGNORED ALL OF THAT. WITH THEIR OWN MONEY THEY PUT A DOWN PAYMENT ON A LOCAL HALL. THEN THEY CALLED ALL THE MANUFACTURERS OF MICRO-COMPUTERS AND SAID FOR TWO HUNDRED DOLLARS WE WILL LET YOU EXHIBIT YOUR EQUIPMENT AND YOU HAD BETTER BE THERE. THEY SORT OF HINTED THE NAVY MIGHT NOT BUY THEIR EQUIPMENT UNLESS THEY WERE THERE, BUT THEY DIDN'T SAY THAT BECAUSE THAT WOULD BE ILLEGAL.

THEY GOT THREE HUNDRED PEOPLE. TWO HUNDRED MORE THAN THEY THOUGHT THEY WOULD.

A YEAR LATER, THEY RAN IT PARTLY SPONSORED OUT IN MONTEREY. THIS YEAR, WHAT HAD BEEN STARTED BY THAT YOUNG GROUP OF NAVY MEN AND WOMEN TURNED OUT TO BE "NAVY MICRO '84" AT VIRGINIA BEACH, WITH EVERY "MICRO" EXHIBITING MAGNIFICENT THREE-PAGE BROCHURES AND A PERFECTLY MARVELOUS JOB DONE WITH OVER THREE THOUSAND PEOPLE PRESENT.

THEY ALSO DECIDED THAT ALONG WITH THE QUESTION OF TRYING TO INFORM THE REST OF THE NAVY THEY HAD BETTER START A MAGAZINE. NOW, DO YOU HAVE ANY IDEA OF WHAT IT WOULD TAKE TO START A MAGAZINE IN THE NAVY? YOU WOULD HAVE TO GO ALL THE WAY TO THE TOP OF THE NAVY, ALL THE WAY TO THE TOP OF THE DEPARTMENT OF DEFENSE, ALL THE WAY TO THE TOP OF FEDERAL OFFICE OF PERSONNEL MANAGEMENT AND BACK DOWN AGAIN. THAT COULD TAKE YOU TWO OR THREE YEARS.

THEY IGNORED ALL OF THAT. THEY DID ONE THING LEGALLY: THEY GOT PERMISSION FROM NABISCO TO USE THE TITLE OF THEIR MAGAZINE. IT'S "CHIPS-AHOY" AND IT'S A TOP NOTCH MONTHLY MAGAZINE ON MICRO COMPUTERS, A REVIEW OF NEW EQUIPMENT, AND THE NEW SOFTWARE. THEY'RE DOING A PERFECTLY MARVELOUS JOB FOR NOT JUST THE NAVY NOW, BUT THE WHOLE FEDERAL GOVERNMENT, INFORMING THEM ABOUT MICRO COMPUTERS.

SOMETHING ELSE HAPPENED AS A RESULT OF THAT GROUP. THEY TOTALLY INFECTED THE WHOLE NRDAC (NAVY REGIONAL DATA AUTOMATION CENTER), RIGHT UP TO THE SENIOR G.S. FIFTEENS. EVERYBODY IN THAT UNIT IS NOW ALL EXCITED ABOUT THE FUTURE. ALL EXCITED ABOUT THESE NEW THINGS. AND THEY'VE TOTALLY REJUVENATED THE PEOPLE. THE MORALE IS AN ASTOUNDING CHANGE. ALL STARTED BY A SMALL GROUP OF YOUNG SAILORS. OF COURSE, AS FAR AS I'M CONCERNED, SAILORS ARE BOTH MALE AND FEMALE. SLATER COMPLETED HIS TIME AT NORFOLK. HE MADE CHIEF AND WENT TO SEA IN THE NASSAU AND HE WANTED A COMPUTER. HE'S A VERY UNHAPPY SAILOR UNLESS HE HAS AN COMPUTER. BUT THE SUPPLY PEOPLE WOULDN'T LET HIM TOUCH THEIRS, CAUSE HE MIGHT ORDER SOMETHING. WEAPON SYSTEMS: NO, HE WOULD FIRE A WEAPON. NAVIGATION: NO, HE MIGHT GET THE SHIP OFF COURSE.



A VERY UNHAPPY SAILOR. HE HAD TO THINK OF SOME LESS LEGAL WAY TO GET A COMPUTER ABOARD SHIP. HE DISCOVERED THE RECREATION COMMITTEE HAD SOME MONEY. SO HE GOT HIMSELF ELECTED TO THE RECREATION COMMITTEE AND THEN HE PRODUCED A PROGRAM.

WHEN IT HIT WASHINGTON, ALL WE COULD SAY WAS "WHY IN THE HELL DIDN'T WE THINK OF THAT". HIS PROGRAM, "COMPUTER LITERACY AT SEA," WAS TO PUT COMPUTERS ABOARD EVERY SHIP. THEY WERE NOW PART OF THE SHIPS EQUIPMENT SO EVERYBODY IN THE NAVY COULD BEGIN TO LEARN COMPUTERS. A FEW WEEKS AGO I COMMISSIONED SLATER AS AN ENSIGN UNITED STATES NAVY. ONE OF THE MOST IMPORTANT THINGS ABOUT IT WAS THAT ADMIRAL PETER CULLEN CAME BACK TO PRESIDE AT THAT CEREMONY. SLATER ELECTED TO STAY IN THE NAVY BECAUSE THE NAVY HAD GIVEN HIM A CHANCE TO DO THINGS AND BECAUSE HE'D ALWAYS WANTED TO BE A NAVAL OFFICER.

BUT THERE'S SOMETHING VERY IMPORTANT ABOUT THAT STORY. WHEN I LEFT MID-SHIPMENS SCHOOL, THEY TOLD ME I HAD TWO JOBS TO DO. IF I HAD TO MAKE A DECISION, IF IT WAS FOR THE GOOD OF THE SHIPS AT SEA, DO IT. THEY GAVE ME A STAR BY WHICH I COULD MAKE DECISIONS.

AND THEN THEY TOLD ME THAT WHEN I WAS COMMISSIONED, MY PRIMARY JOB WOULD BE TO PROVIDE LEADERSHIP. AND THAT LEADERSHIP WAS A TWO-WAY STREET: IT WAS LOYALTY UP AND LOYALTY DOWN. RESPECT FOR YOUR SUPERIOR, KEEP HIM INFORMED, AND MAKE SUGGESTIONS. SUPERIOR, TAKE CARE OF YOUR CREW AND YOU WILL NOTICE THAT THE OLD PRINCIPALS OF LEADERSHIP WORKED. THERE WAS A SAILOR WHO WROTE A LETTER TO AN ADMIRAL AND AN ADMIRAL WHO READ THE LETTER.

I'VE BEEN WATCHING OUR YOUNG PEOPLE ALL ACROSS THIS COUNTRY. I THINK IT'S MOST UNFORTUNATE THAT MEDIA NEVER TALK ABOUT ANYTHING BUT THE FIFTEEN PERCENT THAT ARE NO GOOD. THEY NEVER MENTION THE EIGHTY PERCENT OF OUR YOUNG PEOPLE WHO ARE THE BRIGHTEST, THE HEALTHIEST, THE MOST EAGER TO LEARN THAT I HAVE EVER SEEN IN THE HISTORY OF THIS COUNTRY.

AND YOU'RE PART OF IT.

OF COURSE I KNOW THAT YOU'RE THE HEALTHIEST, BECAUSE YOU HAD VITAMIN PILLS ALL YOUR LIVES LONG AND I HAD TO EAT TABLESPOONS FULL OF EMULSIFIED COD LIVER OIL. AWFUL STUFF.

THEY ARE OUT THERE. I'VE WATCHED THEM ALL ACROSS THE COUNTRY AT THE SCHOOLS, THE COLLEGES. I WATCH THIRD GRADE STUDENTS IN INDEPENDENCE, MISSOURI. THEY WERE WRITING PROGRAMS IN BASIC AND DEBUGGING THEM.

AND YET I FIND THAT OUR YOUNG PEOPLE ARE LOOKING FOR SOMETHING. AND THE THING THAT THEY'RE LOOKING FOR IS THAT POSITIVE LEADERSHIP.

I DON'T KNOW WHY WE LOST IT AT THE END OF WORLD WAR II. WE WENT OVERBOARD ON THE CONCEPTS OF MANAGEMENT. EVERYTHING COULD BE



DONE BY MANAGEMENT. ALL WE DID WAS COUNT THINGS. AS THE SECRETARY OF THE NAVY SAID NOT LONG AGO, "WE'RE GOING TO STOP MANAGING HUMAN RESOURCES AND LEAD PEOPLE." IT'S THE MOST IMPORTANT CONCEPT THAT'S COMING BACK TO US. AND PROBABLY ONE OF THE MOST IMPORTANT PARTS OF YOUR JOB IS TO PROVIDE THAT LEADERSHIP FOR THE YOUNG PEOPLE WHO WILL COME AFTER YOU. LOYALTY UP AND LOYALTY DOWN, A TWO-WAY STREET.

FOR INSTANCE, IN MY CASE IN TAKING CARE OF MY CREW, I DECIDED THAT EVERYONE OF THEM SHOULD BE ABLE TO GET ON THEIR FEET AND GIVE A REPORT AND NOT SAY, "YOU KNOW." SO I PUT A LITTLE SQUARE BOX ON THEIR DESK WITH A SLOT IN IT. IF THEY SAID, "YOU KNOW," DURING A REPORT, THEY HAD TO PUT A QUARTER IN IT. WE DIDN'T TAKE THE QUARTERS, BUT IT TIED UP THAT CAPITAL. YOU'LL BE SURPRISE HOW FAST THEY LEARNED NOT TO SAY "YOU KNOW." WHEN THEY DID, THERE WAS A REWARD.

WHEN I WAS INVITED TO GIVE A PRESENTATION FOR AN ADMIRAL, I WOULD ARRIVE TRAILED BY MY ENTIRE CREW. AND THEN ONE BY ONE I WOULD INTRODUCE THEM TO GIVE THE PRESENTATION ON THEIR PART OF THE WORK. I WATCHED THOSE YOUNGSTERS GROW TWO INCHES WHEN AN ADMIRAL WOULD SAY, "WELL DONE."

THAT'S SOMETHING ELSE WE'VE BEEN FORGETTING TO DO. HOW OFTEN DO WE GIVE PRAISE WHEN PRAISE IS DUE? WE BAWL PEOPLE OUT ALL THE TIME. BUT ALL TOO OFTEN WE FORGET TO SAY, "WELL DONE," "THANK YOU," "THAT WAS A GOOD JOB."

THAT'S PART OF LEADERSHIP. THAT'S PART OF YOUR JOB IN THE FUTURE IS TO PROVIDE THAT LEADERSHIP. TO KEEP GOING FOR THE NEW IDEAS. TO CONTINUE TO MAKE TWO EVALUATIONS: ALL POSSIBLE ENEMY ACTIONS AND THE COST OF NOT DOING IT. AND TO PROVIDE LEADERSHIP.

ONLY ONE OUTFIT NEVER LOST THOSE CONCEPTS OF LEADERSHIP. AND I THINK IF I HAD A MARINE STANDING BESIDE ME, WHAT HE WOULD SAY WOULD BE "WHEN THE GOING GETS ROUGH, YOU CAN NOT MANAGE A MAN INTO COMBAT, YOU MUST LEAD HIM." WE MANAGE THINGS. WE LEAD PEOPLE.

THE MOST IMPORTANT JOB YOU WILL HAVE, NO MATTER WHAT FIELD YOU'RE IN, IS TO PROVIDE THAT HONEST, TWO-WAY "LOYALTY UP AND LOYALTY DOWN" LEADERSHIP AND IT WORKS. OUR YOUNG PEOPLE ARE LOOKING FOR IT. NEVER FORGET TO GIVE PRAISE WHEN PRAISE IS DUE. IT'S ONE OF THE THINGS I WOULD HOPE THAT EVERYONE OF YOU WILL REMEMBER AND THAT YOU WILL PRACTICE AT ALL TIMES. BECAUSE YOU ARE THE FUTURE. YOU'RE AT THE BEGINNING.

OF COURSE WE WILL ALWAYS HAVE BEGINNINGS. TODAY IS BOTH A BEGINNING AND ENDING FOR ME, BECAUSE TODAY IS PEARL HARBOR DAY. MOST OF YOU CAN NOT REMEMBER THIS. BUT I CAN. I CAN REMEMBER THE TIME WHEN WE WERE NOT READY. I HOPE WE WILL BE READY IN THE FUTURE. I HOPE OUR YOUNG PEOPLE WILL BE READY IN EVERY DIRECTION AND EVERY FIELD.



WHEN SOMEBODY ASKS ME NOW DAYS, "WHAT WAS THE MOST IMPORTANT THING DONE BY THE COMPUTER THIS YEAR," I HAVE TO REMIND THEM ABOUT THE YOUNG WOMAN AT WRIGHT STATE UNIVERSITY. THE YOUNG PARALYZED WOMAN WHO WALKED. WE'RE ONLY AT THE BEGINNING. IT WAS THE CENSORS ON HER LEGS AND A COMPUTER ON HER BELT THAT ENABLED HER TO WALK TO HER GRADUATION AND RECEIVE HER DIPLOMA.

THERE'S SO MUCH MORE STILL TO BE DONE. TREMENDOUS AREAS STILL TO BE EXPLORED. AND THIS WILL BE YOUR JOB. AND IT WILL COST ALL DISCIPLINES.

SOONER OR LATER, MOST PEOPLE WILL LEARN TO USE A KEYBOARD. I'M NOT VERY GOOD AT IT YET. I USE TWO FINGERS.

SO I WISH YOU WELL, BUT I PROMISE YOU IF YOU SAY "WE'VE ALWAYS DONE IT THAT WAY," I WILL BE RIGHT BESIDE YOU TO HAUNT YOU FOR 24 HOURS. I'M PROUD OF WHAT THOSE YOUNGSTERS HAVE DONE OVER THE YEARS FOR ME AND FROM WORKING WITH ME. TWO OF THEM HAVE RECEIVED THE NAVY ACHIEVEMENT AWARD FOR THEIR WORK ON TEST ROUTINE. ONE RECEIVED THE NAVY ACHIEVEMENT AWARD FOR LEADING A GROUP OF FOUR. ONE SECOND CLASS, TWO THIRD CLASS AND A SEAMAN. IN FOUR MONTHS THEY WROTE A COBAL COMPILER FOR AN 8K MACHINE WHEN EVERYBODY SAID IT COULDN'T BE DONE. WE'RE VERY PROUD OF ONE MEMBER OF THE GROUP. SHE COMPLETED HER COURSES, SO WE SHIPPED HER OFF TO OCS. SHE SERVED IN THE SPACE SURVAILANCE CENTER AT DHALGREN (VA.) AND AT A COMBINE COMMAND OVER SEAS. SHE'S NOW AT THE NAVAL POST GRADUATE SCHOOL GETTING HER MASTERS DEGREE IN COMPUTERS.

YOU'RE OUT THERE, YOU YOUNG PEOPLE, AND THE ONES WHO COME AFTER YOU. OUR FUTURE AND THE FUTURE OF THIS COUNTRY IS TOTALLY DEPENDENT ON WHAT YOU DO. SO I WISH YOU THE BEST IN YOUR WORK. I HOPE YOU ALWAYS MAKE THE TWO REVIEWS, AND I HOPE YOU WILL ALWAYS PROVIDE THAT LEADERSHIP TO THE YOUNG PEOPLE.

FOR MYSELF, I PROBABLY SPENT ONE OF THE MOST EXCITING, INTERESTING, CHALLENGING AND BUSY LIVES ANYBODY EVER SPENT. I'VE LOVED EVERY MINUTE OF IT. I'VE ALSO RECEIVED MOST OF THE AWARDS THAT THEY'VE GIVEN ANYONE IN THE COMPUTER INDUSTRY.

EACH TIME I'D RECEIVE ONE, I WOULD THANK THEM, AND THEN I TOLD THEM SOMETHING I WOULD LIKE TO REPEAT TO YOU: "I'VE ALREADY RECEIVED THE HIGHEST AWARD I WILL EVER RECEIVE. NO MATTER HOW LONG I LIVE. NO MATTER HOW MANY MORE JOBS I MAY HAVE. AND THAT HAS BEEN THE PRIVILEGE AND THE RESPONSIBILITY, TWO VERY IMPORTANT WORDS, OF SERVING VERY PROUDLY IN THE UNITED STATES NAVY. I WISH YOU ALL SERVICE OF THE SAME KIND. THANK YOU.